

Notice of Allowability

Application No.

10/748,812

Examiner

John H. Le

Applicant(s)

FINNIGAN ET AL.

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicant's amendment filed 01/13/2006.
2. ☒ The allowed claim(s) is/are 1-9, 11-13 and 15-18.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

Response to Amendment

1. Applicant's amendment filed 01/13/2006 has been entered and carefully considered.

Claim 12 has been amended.

Claims 10 and 14 have been cancelled.

Reasons for Allowance

2. Claims 1-9, 11-13, and 15-18 are allowed.
3. The following is a statement of reasons for the indication of allowable subject matter:

Please see the previous office action and applicant's argument filed on 04/20/2005, 08/19/2005, and 01/13/2006.

Regarding claim 1, none of the prior art of record teaches or suggests the combination of a system for controlling blade tip clearance in a turbine, the system comprising: a sensor for sensing a turbine parameter and generating a sensor signal representative of said turbine parameter; a modeling module generating a tip clearance prediction in response to turbine cycle parameters; a controller receiving said sensor signal and said tip clearance prediction and generating at least one command signal; said actuators including at least one actuator receiving said command signal and adjusting a position of at least one of said shroud segments in response to said command signal. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

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Regarding claim 14, none of the prior art of record teaches or suggests the combination of a method for controlling blade tip clearance in a turbine having a blade rotating within a shroud having a plurality of shroud segments, the method comprising obtaining a turbine parameter, wherein said obtaining a turbine parameter includes receiving a sensed parameter and deriving an actual turbine parameter in response to said sensed parameter; generating a tip clearance prediction in response to turbine cycle parameters; generating at least one command signal in response to said turbine parameter and said tip clearance prediction; providing said command signal to an actuator to adjust a position of at least one of said shroud segments. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Regarding claim 18, none of the prior art of record teaches or suggests the combination of a system for controlling blade tip clearance in a turbine, the system comprising: a stator including a shroud having a plurality of shroud segments; a rotor including a blade rotatable within said shroud; an actuator assembly positioned radially around said shroud, said actuator assembly including a plurality of actuators; a sensor for sensing a turbine parameter and generating a sensor signal representative of said turbine parameter; a modeling module generating a tip clearance prediction in response to turbine cycle parameters; a controller receiving said sensor signal and said tip clearance prediction and generating at least one command signal; said actuators including

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at least one actuator receiving said command signal and adjusting a position of at least one of said shroud segments in response to said command signal, wherein said actuator includes an inflatable bellows in fluid communication with a pump, said command signal being applied to said pump to control pressure of said inflatable bellows. It is these limitations as they are claimed in the combination with other limitations of claim, which have not been found, taught or suggested in the prior art of record, that make these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John H. Le whose telephone number is 571 272 2275. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on 571 272 2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public

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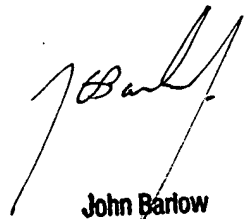
PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John H. Le

Patent Examiner-Group 2863

February 25, 2006



John Barlow
Supervisory Patent Examiner
Technology Center 2800